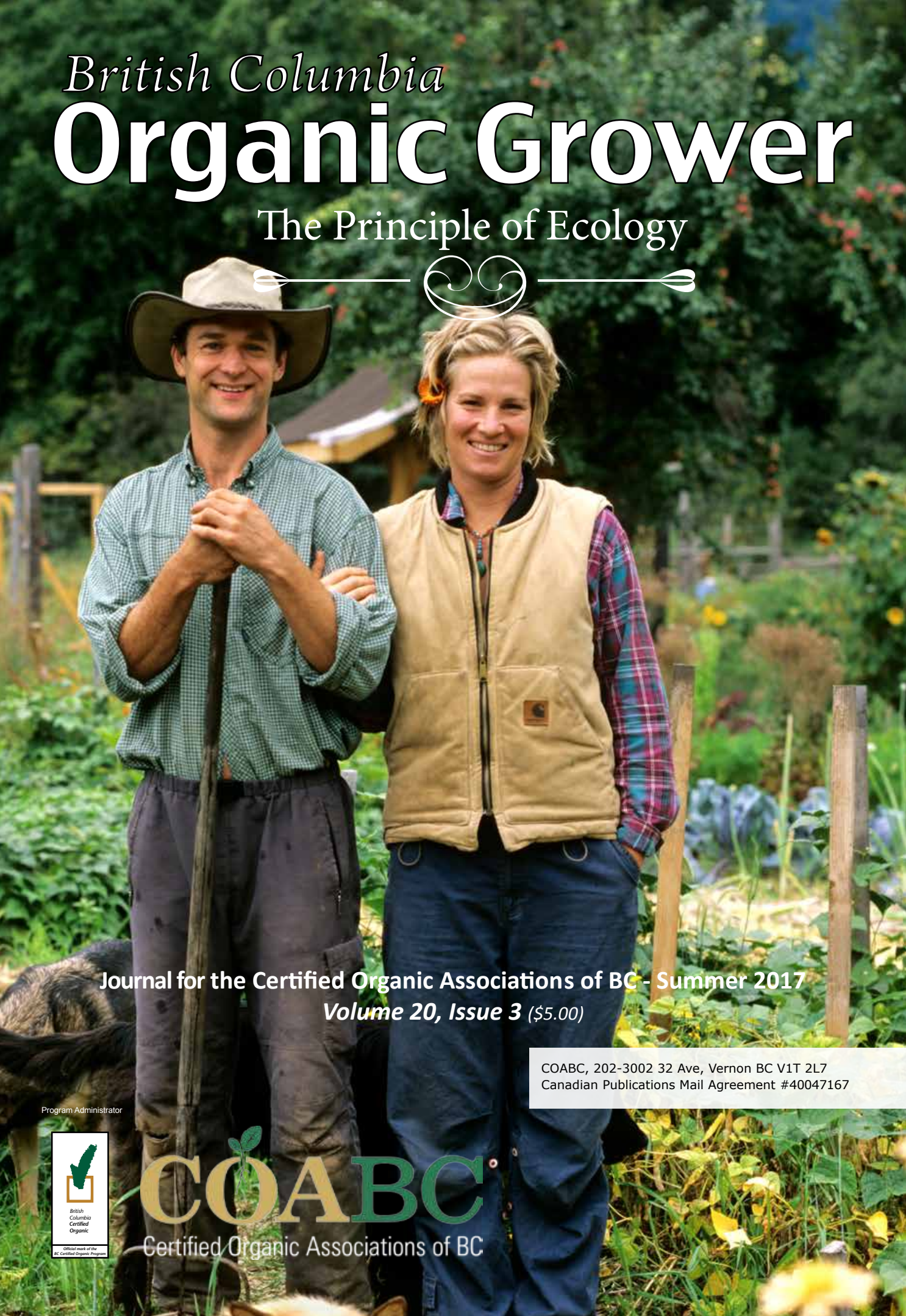

British Columbia Organic Grower

The Principle of Ecology

Journal for the Certified Organic Associations of BC - Summer 2017
Volume 20, Issue 3 ($5.00)

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Certified Organic Associations of BC

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BC Organic Grower

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On the Cover: Pete Slevin and Hamsa Eliza Gooderham at Bee Greens Organic Bedding Plants, Slocan Valley. Credit: Quinton Gordon

Editor's Note

By Darcy Smith

Principle of ecology
Organic agriculture should be based on living ecological systems and cycles, work with them, emulate them and help sustain them.

In a video captured at last year's COABC conference, Natalie Forstbauer tells a story about earthworms: when her family moved from their organic farm to a new piece of land that had been farmed conventionally, the kids went hunting for earthworms, as organic farm kids do—but there were none to be found! Thanks to the organic and biodynamic practices they used to rebuild the soil ecology, by the following year the earth was teeming with life. This was her "Aha!" moment, when she saw the powerful impact of working with nature to build healthy ecosystems. (Natalie tells it much better than I do, so please look for the video on our Facebook page!)

Our Summer 2017 issue is all about the principle of ecology, and these pages are overflowing with stories of farmers and researchers who have made ecology their lives. For our Organic Stories feature (page 8), we're transported to the Slocan Valley as Bee Greens Organic Bedding Plants gives us a tour of their little ecosystem, which supplies veggie starts to growers in the Kootenays.

Flip to page 6 for a primer on agroecology—a call to "bring agriculture back into harmony with human ecology"— from the National Farmers Union, and then head to page 22 for the second part in a series on unpaid farm labour with Michael Ekers and Charles Levkoe's "Squaring the Circle," looking at the role of internships in farm education and social movement building.

As Natalie's story shows us, insects are key to a healthy farm ecology. In our Ask an Expert column, Saikat Basu takes a deep dive into pollinator mix (page 16), and in Footnotes from the Field on page 24 Marjorie Harris paints quite the picture of partnership as ladybugs and other beneficial insects play their part at Snowy Mountain Farm.

On page 13, Blain Hjertaas shares principles for healing the soil from Holistic Management, a decision making framework based in regenerative agriculture. Gabe Cipes writes about his recent adventures in aquaponics on page 19, exploring water as soil and how aquaponics fits with the organic movement.

Page 27 switches gears with a BC Organic perspective on the Safe Food for Canadians Regulations—check in to see what the regulations say, how organic operators may be impacted, and how the regulations could be improved.

It's been a winter and spring full of extreme weather and what has surely felt like one disaster after another to farmers, so I'd like to express my gratitude to all the farmers, researchers, and organic advocates who take the time out of their very busy lives to contribute to the BC Organic Grower, issue after issue. Each of you are cultivating amazing living systems on your land and in your lives, and sharing your stories and insights in these pages is a gift to our community.

I'd love to hear from all of you, whether you've contributed in the past, maybe thought about writing, or even have an idea for a story you'd like to see us cover. Reach out with your thoughts, letters, and story ideas to editor@certifiedorganic.bc.ca, and be sure to visit us online.

bcorganicgrower.ca

National Organic Week

September 16-24, 2017

Organic Week—the largest annual celebration of organic food, farming, and products across the country—is coming, and with it, COABC's annual Organic Roadshow. We'll be hitting the road again to bring you organic education and events across the province. If you'd like to host an Organic Week event, check out the Organic Week website for inspiration. Find events near you, and list yours on the map at organicweek.ca.

If you have a request for a farmer-focused education topic for our Organic Roadshow in your area, please reach out to assistant@certifiedorganic.bc.ca.

Organic Online System

Supporting Organic Operators And Certifiers In BC

What Is The Organic Online System?

- An innovative province-wide online tool for organic certification
- Operators will be able to apply for and renew certification online
- Renewal applications will pull information from previous year
- Certifying Bodies (CB's) will be able to securely manage applications, inspections, and data
- Applications, communication, and inspections can all be managed through the system

What Are The Goals Of The Organic Online System?

- To streamline the application and certification process
- To save operators, CB's, and Verification Officer's (VO's) time, paperwork, and money
- To facilitate the anticipated increase in transition of new entrants due to the BC government's upcoming initiative to regulate the term "organic" to only certified organic operators
- To gather accurate data about BC's organic sector in order to encourage smart growth and track the impact of organics in BC.

We demonstrated a beta version of the program at the COABC 2017 conference, and are currently addressing feedback and improvements. The system will be fully operational and available through Certifying Bodies for the 2018 season. If you are interested in testing the system, please reach out to your CB admin. For more information, please visit certifiedorganic.bc.ca or contact COABC: assistant@certifiedorganic.bc.ca.

This project was funded in part by the governments of Canada and British Columbia through programs delivered by the Investment Agriculture Foundation of B.C.

Extended Health Benefits for Organic Operators

As of July 1st, 2017, the COABC is introducing a group benefits plan exclusively for its members. The Association Benefits Plan will include Life Insurance coverage, drug coverage, dental coverage, and more. Coverage for services such as physio, massage, and acupuncture offers a great opportunity for farmers to take care of their bodies.

Every member can pick from an option of three plans based on their individual budget. Each option has a corresponding rate for single coverage and family coverage.

Some of the advantages to using the Association Plan include but are not limited to;

- Significant benefit price reduction for members
- No age limit for health and dental coverage
- No underwriting for benefits
- Flexibility of coverage

If you would like to sign up and/or have any questions regarding the Association Benefit Plan please do not hesitate to call or email Travis Forman:

✏ **tforman@harbourfrontwealth.com**

☎ **604-560-8266**

New Website for Canadian Organic Grower Magazine

With New Resources for Canadian Farmers and Gardeners

Canadian Organic Growers is pleased to announce the launch of a brand new website for The Canadian Organic Grower (TCOG) magazine.

Whether you're a new or experienced grower, the new website is an online resource to find information on organic farming, gardening and research. The new website is loaded with information on a vast range of subjects – from vegetable, field crop and livestock growing tips from experienced organic growers to current trends in organic research. Users will be able to find old TCOG articles on the website and search the database by keyword, subject or title to find current organic growing trends.

Co-editor of the magazine, Joanne Thiessen Martens, is thrilled about the new website's potential, "The redesigned TCOG website will make it easier than ever for anyone interested in organics to learn more and to connect with COG and others in the organic community."

For the past few decades, The Canadian Organic Grower magazine has been a central publication in which the organic sector has been able to share experiences and learn from one another. The launch of a new online platform is an opportunity to reach more readers and contributors than ever before and enhance the sense of community that the magazine has built.

The website will be updated regularly with new digital content to keep readers informed between print issues (print issues are published three times a year).

The launch of the website was made possible through the financial support of the Government of Canada.

magazine.cog.ca

Agricultural Youth Green Jobs Initiative Farm Intern Funding available!

The Agricultural Youth Green Jobs Initiative has been approved for a 2-year period. Applications will be accepted starting April 26, 2017. Producers operating a farm or ranch can hire a young person to implement an environmentally beneficial project in their operation.

In the program's first year, 45 green farm jobs and 102 green internships were created across the country. Projects included composting, permaculture, land preparation for certified organic production, and the construction of a root cellar for alternative storage for a family operation.

Funding is available through the following two streams:

1. Green Farms Stream: Farm operators could receive up to a maximum of $10,000 per youth intern, 30 years old or younger, including high school students to implement projects that are environmentally beneficial.
2. Green Internships Stream: Employers in the agricultural sector but not directly on farm could receive up to a maximum of $16,000 per post-secondary graduate intern to undertake environmental activities, services or research that will benefit the agriculture sector.

For both streams, projects must be no longer than 12 months in length and interns must be between the ages of 15 and 30 inclusive. The internship stream requires that the interns be post-secondary graduates.

Applications are being accepted now, and will be approved on a first-come, first-served basis until all funds have been allocated.

For more information, visit Agricultural Youth Green Jobs Initiative or call

☎ **1-866-452-5558**

Find the Youth Green Jobs Initative link online at:

bcorganicgrower.ca/newspatchsummer17

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Agroecology In Canada:
Food Sovereignty In Action


Credit: Sara Dent (farmlove.org)

By The National Farmers Union

The following article consists of excerpts from Agroecology in Canada: Food Sovereignty in Action published by the National Farmers' Union and appearing at youngagrarians.org.

"Agroecology is much more than a set of technologies; it is a political and social system, a way of life, a form of resistance against corporate control of the food system, and quite simply the best means of achieving food sovereignty."
— Ayla Fenton, NFU Youth Vice President

"Agroecology is the answer to how to transform and repair our material reality in a food system and rural world that has been devastated by industrial food production and its so-called Green and Blue Revolutions. We see agroecology as a key form of resistance to an economic system that puts profit before life."
— La Via Campesina, 2015[1]

Agroecology is a holistic approach to food production that uses—and creates—social, cultural, economic and environmental knowledge to promote food sovereignty, social justice, economic sustainability, and healthy agricultural ecosystems.

Ultimately, agroecology means bringing agriculture back into harmony with human ecology, including our biology, our environment, and our cultural and political structures.

In the fight against the corporate control of our food system, there is an opportunity—and a need—to establish agroecology as an essential component of food sovereignty. In doing so, we will be part of a coherent and unified movement with our allies around the world in La Vía Campesina.

Common Pillars Of Agroecology

Based on La Via Campesina's Declaration of the International Forum on Agroecology (2015)[1]

1. Agroecology is a way of life, not just a set of technologies or production practices, and must be adapted to local contexts.
2. Production practices should be based on ecological principles and an understanding that life cannot be commodified.
3. Reduction of externally purchased inputs, and increased farm and community self-sufficiency will allow for greater farmer autonomy and strengthened rural economies.
4. Peoples and communities who feed the world need

Broadfork Farm: Agroecology in Action

NFU members Shannon Jones and Bryan Dyck operate Broadfork Farm in Cumberland County, Nova Scotia. They make their living producing organic vegetables and cut flowers for the local community.

No pesticides are ever sprayed at Broadfork Farm—not even organic ones. "If you spray, there's not much you can hope for except that you'll need to do it again," Shannon explains. "We focus on protecting crops with physical barriers, and providing habitat that will attract predators of pests. A big reason we started producing cut flowers is that they create amazing habitat while still generating income." Weeds are allies of the farmers here, and grow freely in pathways between permanent beds. "The weeds act as a living mulch," says Shannon. "They attract beetles, which eat pests, and their roots provide lots of organic matter and habitat for beneficial soil organisms."

Cover crop "cocktails" of many species provide more habitat while building healthy soils. For added fertility, they are able to source locally produced seafood waste compost, crab meal and seaweeds instead of the costly, factory-farmed chicken manure and other popular products. This saves them money and supports their local economy.

Shannon and Bryan also save seeds to exchange with other members of a local seed co-op. "Commercially available seed comes from all over the world," says Shannon. "The climate in eastern Canada is difficult and very little seed production happens here, so we are developing more resilient varieties for ourselves. We are trying to breed arugula that has better heat and cold tolerance—if we can produce arugula when no one else is able to, we'll sell a lot more of it!"

Participating in their community has helped make Broadfork Farm successful. They attend as many farm events and workshops as possible, and have developed a huge network of farmers to draw on for support. "The department of agriculture rarely has answers that are relevant to me—I get much better answers from other local producers," says Shannon. "They have helped us avoid many mistakes and we are certainly more pro table because of this."

Shannon and Bryan work with the NFU and many other organizations, recognizing that government policy impacts their farm success, and that fighting for a more just and sustainable food system will support their farm in the long term.

their collective rights protected in order to secure their access and control over the commons (seeds, land, waters, knowledge, and culture).

5. Knowledge sharing for food producers must be horizontal, peer-to-peer and intergenerational.
6. Direct, fair distribution chains, transparent relationships, and solidarity between producers and consumers are needed to displace corporate control of global markets and generate self-governance by communities.
7. Agroecology is political and requires us to transform the structures of power in society.
8. Youth and women are the principal social bases for the evolution of agroecology. Territorial and social dynamics must allow for leadership and control of land and resources by women and youth.

Increase Farmer Autonomy

Farmer autonomy is about farmers being able to make decisions for themselves. As corporatization of the food system has increased, agriculture has become more industrialized, and decision making in the food system has moved from farmers, citizens and governments to corporate boardrooms. Transnational energy and agribusiness corporations seek to maximize their own profits by selling inputs (inflows) and promoting production of monoculture crops (outflows), which are purchased at low prices from farmers to resell to consumers at high prices. As a result, total operating costs of Canadian farms have risen by over 1300% since 1971[2]. In the same period (1971–2014), the Consumer Price Index has gone up 496%[3].

Clearly, the cost of farm inputs has risen faster than other costs; meanwhile the realized net farm income has not increased much at all, and its purchasing power has diminished by nearly five times. So the disconnect between the cost of farming and the rewards of farming is quite dramatic.

In contrast, agroecological systems strive to minimize or eliminate costly inflows and unnecessary outflows. Farmers can utilize a range of techniques that work with

Continued on page 11...

BEE GREENS

Lush lettuce ready to sell
Credit: Bee Greens Organic Bedding Plants

Passion for Plants in the Slocan

By Hamsa Eliza Gooderham

A love affair with plants began 30 odd years ago out of Brenda Elder's basement and grew, literally, into the fine enterprise that it is now: a wholesaler of bedding plants to the Nelson and Slocan Valley area. We took over the business after a decade of working for Brenda when she was ready to retire and it became Bee Greens Organic Bedding Plants.

We already had some infrastructure since we were market gardeners, but we moved her 70' greenhouse down the road to our farm, and built a new building to house the potting area, soil mixing area. So now there is a beautiful six sided 1000 square foot omni hive for it all with the two greenhouses like wings flying off of it! The second story houses the studio of artist friend Tanya Pixie Johnson. Truly a creative hub.

What makes this little operation fairly unique is that we start everything by seed ourselves. We buy a few cuttings from a neighbouring greenhouse to augment in the fancy flower department, but every vegetable, herb, and flower is sown and transplanted by hand.

Beginning at the end of January the first seeds are sown; pansies, geraniums, artichokes, parsley, celery, with the first major sowing being the onions beginning of February. Soon follows consecutive sowings every few days of brassicas, lettuce, tomatoes, peppers, and a wide variety

> "What makes this little operation fairly unique is that we start everything by seed ourselves."

Credit: Mackin Creek Farm

of flowers and herbs. By the end of February the propagation room is full and the second room begins to fill. By March 1, all the hardier veggies and flowers move into the 70' greenhouse, which is heated by a huge barrel stove.

As the snows are melting and the daylight grows, the wee plants thrive in the greenhouse, and the team here spells each other off for who gets to do the 2 a.m. stoke to keep everyone toasty. It's an old school system but it works great and we're crazy enough to do it. Through March we sow more and more of the above mentioned and soon come the cukes, winter squash, summer squash and melons.

By now, the heated greenhouse is full with approximately 5,000 tomatoes and peppers and tens of thousands of broccoli, kale, lettuce and so many other green babies! The flower department is our smallest, accounting for only about 25% of sales. These plants gradually move out of the first greenhouse to the sales area on the farm or are wholesaled to Nelson. We deliver the wholesale orders in a 2000 Mitsubishi Delica with custom shelving just for plants. Our driver is quite a sight as he powers off in the right hand drive 4x4 moon bus busting with plants.

In Nelson we sell to the Kootenay Co-Op and Nelson Farmers Supply. Both of these outlets provide us with the bulk of our sales. They have been such supporters over the years, especially when we first took over from Brenda and were still figuring out what we were doing!

> "We are working on setting up a local seed saving co-op. Heirloom and open-pollinated seed diversity is an important aspect of our business."

Closer to home in the Slocan Valley, we wholesale to Evergreen Natural Foods and most recently Silverton Building Supplies is developing a little plant sales project. Our retail sales from the farm are a smaller percentage, but we really enjoy the interface with our community.

Visitors to the farm seeking plants find themselves in a greenhouse filled with a beautiful array of flowers and hanging baskets, lush tomatoes and peppers, cucumbers and squash. On a warm late April day the sweet basil and herbs are reminiscent of the promise of summer harvests and culinary delights. The vibrant green hues are a visual delight, emanating the health and vitality of the love and organic nutrients they have received during their formative eight weeks. This is a special place indeed. Folk love to gather here to exchange gardening tidbits, news of favourite varieties, and predictions about the coming Kootenay growing season.

We buy our seeds from several different suppliers. This year we tried to keep the buying within Canada; however, because of the value of the dollar seed prices all across the board are increasing at such a rapid rate, as most farmers know, it's still quite a struggle to budget in this area. In Canada we buy from William Dam in Ontario, West Coast here in BC, Richters, and in the US; Johnnys, High Mowing, Seed Savers, and Osbourne.

We do our best to purchase all organic; however some of the longtime favourites we cannot find organically grown. We save a lot of our own seeds, but need help in this department. We are working on setting up a local seed saving co-op. Heirloom and open-pollinated seed diversity is an important aspect of our business.

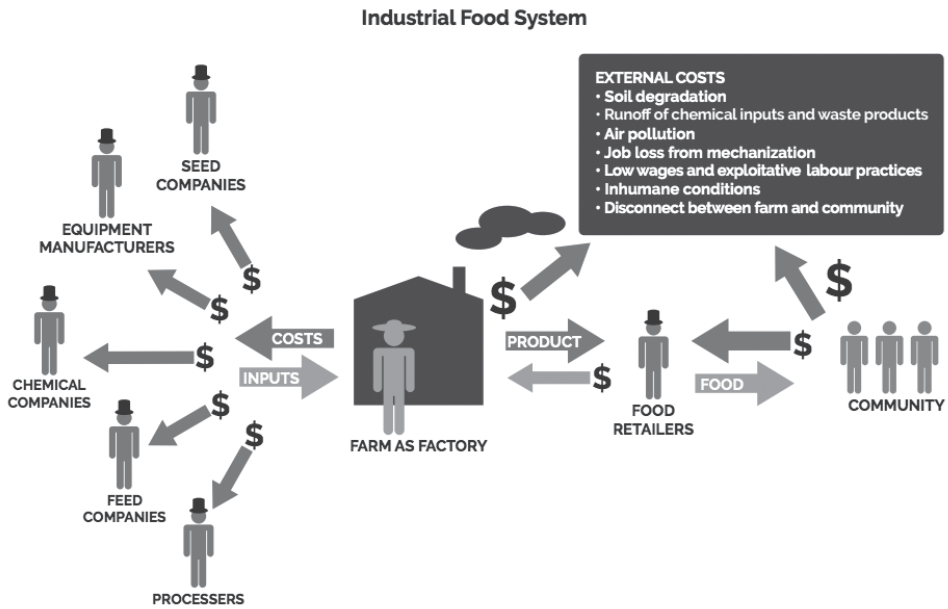
Our vision is to continue on this wave of prosperity and abundance and supply our customers with healthy vital plants for the home garden.

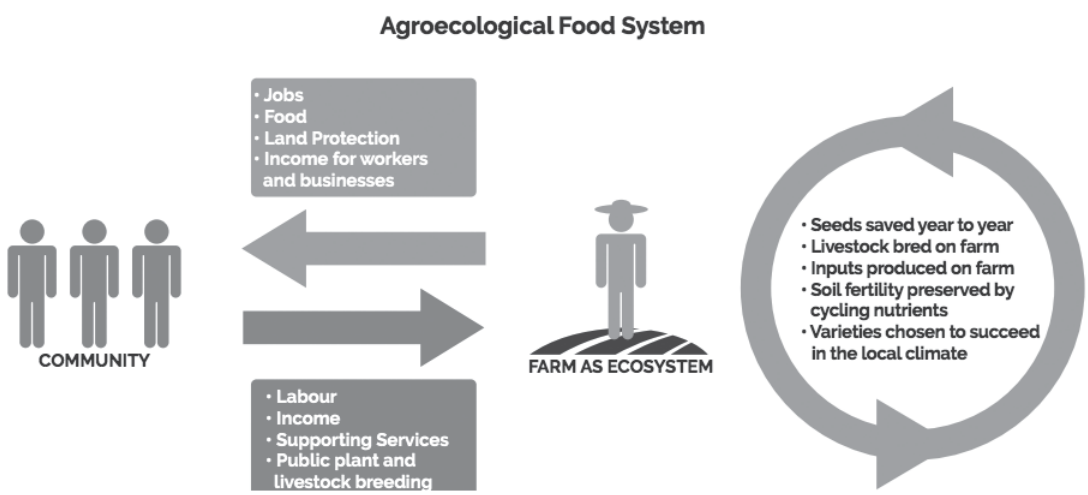
Bee Greens sells mostly wholesale to the Kootenay Co-Op and Farmers Supply in Nelson, with two smaller contracts in the Slocan Valley, Silverton Building Supplies and Evergreen Natural Foods. The greenhouses are open to public sales on the farm from April to June.

beegreensplants.com

Credit: Bee Greens Organic Bedding Plants

Hamsa Eliza Gooderham farms in the Slocan Valley with Pete Slevin and the team at Bee Greens. Eliza is especially passionate about flowers.





... Agroecology - continued from page 7

nature, including biocontrols—methods of controlling pests and other problems with raw materials from the local environment (e.g. weeds and microorganisms).

Increase Productivity

"Although conventional wisdom claims that small family farms are backward and unproductive, research shows that small farms are much more productive than large farms if total output is considered rather than yield from a single crop" —Miguel Altieri, an expert in agroecology based at the University of California, Berkeley

Agroecology's overarching principle is to shift from linear one-way flows to continuous cycles. With agroecology, farmers strive to minimize losses of energy, water, nutrients and genetic resources while optimizing organic matter and nutrient cycling. Enhancing biodiversity and soil health promotes ecological processes and services that work for the farmer. Thus, productivity is no longer associated solely with yield. Other measures include food produced per hectare of land, efficient resource use, long-term ecosystem sustainability, and economic development.

Increase Resilience

In agroecology, the seed is a commons—the collective heritage of humanity to be saved, shared and reused without the restrictions of private property rights such as patents. When growers can share seeds, they enhance biodiversity and build the resilience necessary to adapt to new conditions created by climate change.

"Agroecology continues to grow, both in science and in policies. It is an approach that will help to address the challenge of ending hunger and malnutrition in all its

forms, in the context of the climate change adaptation needed."
—FAO Director-General José Graziano da Silva

Support Indigenous And Traditional Knowledge

Biopiracy is the process whereby private entities including transnational corporations (TNCs) claim intellectual property rights on genetic resources that have traditionally belonged to the commons. These resources have been managed, developed and shared for generations by Indigenous communities and peasants. Farmers who practice agroecology seek to develop mutually beneficial human relationships by duly acknowledging the peoples who have sustained essential resources and traditional knowledge. When farmers source and help to preserve production inputs such as heritage seeds, they contribute to the expansion of Indigenous and ancestral knowledge.


Credit: Sara Dent (farmlove.org)

To read more about agroecology, and the NFU, visit:

nfu.ca/issues/agroecology-canada

For more on the history of agroecological principles and La Via Campesina, please see:

viacampesina.org

References:

[1] La Via Campesina's Declaration of the International Forum on Agroecology (2015). viacampesina.org/en/index.php/ main-issues-mainmenu-27/sustainable-peasants-ag ricul ture-mainmenu-42/1749-declaration-of-the-inter nation al-forum-for-agroecology

[2] StatsCan. 2015. Farm input price index, quarterly (index, 2002=100). Table 328-0015. Government of Canada.

[3] Gioanetto, Fulvio. 28 June 2015. Practical Agroecological Workshop. Manorun Farm, Hamilton, Ontario.

HOLISTIC MANAGEMENT

Blain Hjertaas moving cattle
Credit: Sandy Black

By Blain Hjertaas

Holistic Management is a decision making system that helps us make better decisions. It teaches us to make decisions that are simultaneously sociologically, environmentally, and economically sound. The end result is happy people, healthy profits, and regenerating soils.

Holistic Management emphasizes principles of regenerating the soil. Our modern industrial approach to agriculture has been a disaster leading to declining nutrient density in food. We consume just over a half tonne of food per year; in the process of producing this food 10 tonnes of soil are lost. Clearly a system of agriculture like this cannot continue.

Holistic Management teaches us the basic principles of regenerative agriculture. How each of us uses these principles is what makes holistic management so unique, as each uses their own creativity to make it work in their own situation.

Principle #1 Solar Capture

To be successful we have to capture sunlight. It is free and non-limiting. There are only three things we can do to increase solar capture: we can make solar panels larger, put more panels up, and leave them turned on longer. On the farm, plant spacing and diversity will largely determine the size and density of the leaves—and in turn how much solar capture is available.

We have the potential to capture solar energy from snowmelt to snow arrival (in Saskatchewan, that's approximately 220 to 250 days). Most annual cropping systems capture solar energy for 70 days of the year. If we are not capturing energy, our soil health is declining. The purpose of solar capture is to send energy to the soil. We need to look at inter cropping, winter crops, poly cropping, etc to increase our harvest of solar energy.

Principle #2 Water Cycle

To make crops grow we need moisture. We have no control as farmers as to how much or when it rains but we have total control as to whether the rainfall is effective (goes into the soil) or not effective (runs off). To make the water cycle effective we need to keep our land covered in litter (green or dead plant material). This absorbs the physical effect of the raindrops and allows them to enter the soil slowly.


Credit: Sara Dent (farmlove.org)

You can think of the litter layer like the skin on your body. If you have a major burn the consequences can be catastrophic. Litter provides a similar role for the earth. It keeps it warmer in cool times, cooler in warm times, and it allows the moisture to enter and prevents it from evaporating. Moisture is critical for life; to capture and hold it is critical for our success. One of our goals should be to capture every raindrop where it falls.

Principle #3 Mineral Cycle

To have a functioning mineral cycle we need active biology. This occurs when we have solar capture to send sugar down the roots which becomes root exudates. This exudate is the food for the bacteria and fungi. The mycorrhizal fungi physically attach themselves to the root hairs of the plant. In return for the sugar, the fungi get minerals for the plant. These minerals are generally not available to plant; however the mycorrhizal fungi can remove minerals from the soil particles and transport it directly to the plant. This is a synergistic relationship where the plant feeds the fungi and the fungi feeds the plant. This is how nutrient dense food is produced.

To have an effective functioning mineral cycle in place, we need to feed the workers below the ground (solar capture) and keep them warm and moist (litter layer and effective water cycle). The bacteria provide many diverse roles from producing enzymes required to being food for the predators which in turn releases nitrogen for the plants. It is wonderfully complex. All we need to do as managers is to foster and enhance and it will continue to get better. All of the living and dying of these billions of organisms is what ultimately sequesters carbon.

Principle #4 Community Dynamics

Diversity is wonderful: the more the better. Diversity is not limited to what you plant. Look around; diversity is found in birds, insects, people, animals, and plants. There are synergies between species we do not fully understand. The whole is greater than the sum of its parts: 1+1>2. The challenge becomes how we grow crops that we can harvest mechanically. Poly cropping and inter cropping are becoming new words to farmers as they learn how to put different types of rotations together to harvest the power of this diversity.

How these four principles come together on your farm is up to your creativity. As the four principles are enhanced good things begin to happen. Carbon sequestration begins in the soil. 1 gram of carbon holds 8 grams of water. Increase carbon storage, your farm becomes better able to withstand drought or extreme wet conditions. As carbon increases along with solar capture more life can live below ground. This life below ground increases the nutrient density of the food which is critical for our health. Our requirement for purchased inputs declines and yields go up which certainly helps profitability.

Society will benefit from more nutrient dense food, less infrastructure damage in severe weather events, and carbon being removed from the atmosphere. On my operation in South Eastern Saskatchewan, I have been monitoring soil carbon levels since 2011. I am averaging 22.88 tonnes of CO2 sequestered per hectare per year on a grazing operation. Each Canadian has a carbon footprint of 18.9 tonnes/person/year. Every hectare I operate more than sequesters one Canadian's carbon footprint.

Regenerative farms provide tremendous value in ecological goods and services to all of society that we are not recognized for. On my 1000 acre operation at a value of $20/ton for CO2, my sequestration value is worth $175,000 per year to society. More water holding and more nutrient dense food and better diversity with endangered grassland birds returning—what value is encompassed there that cannot be quantified?

Holistic Management helps you to make better decisions to achieve the goals that you have for yourself and your family. Along the way your operation should become more profitable and your ecosystem more resilient.

holisticmanagement.org

Blain Hjertaas is a Certified Holistic Educator with Holistic Management International. He has 15 years of practical experience using Holistic Management running a 1000 acre grass operation in Saskatchewan, where they also raise lamb, custom graze cows, and poultry. Blain has a passion for carbon sequestration and offers consultations and education on Holistic Management and how the environment functions and how our actions will ultimately influence the ecosystem. bhjer@sasktel.net

POLLINATOR MIX

Bee foraging on wild flower.
Photo credit: W. Cetzal-Ix

AN IMPORTANT SOLUTION FOR CONSERVATION OF BEES & OTHER INSECT POLLINATORS

By Saikat Kumar Basu — Department of Biological Sciences, University of Lethbridge, Lethbridge, AB, Canada & Performance Seed, Lethbridge, AB; email: saikat.basu@alumni.uleth.ca

Insects such as bees (Order-Hymenoptera), some species of flies (Order-Dipetra) and beetles (Order-Coleoptera), moths and butterflies (Order-Lepidoptera), under the Class-Insecta and Phylum-Arthropoda constitute an important army of natural pollinators that help in the process of pollination in several important crops and forest trees. Pollination is the process of transfer of pollen grains from anther (male reproductive organ) to the stigma (female reproductive) of the same flower (self-pollination) or a different flower (cross-pollination). Cross pollination is achieved either by non-biological agents like wind, air and water; or via biological agents like different species insects as mentioned above, mollusks (snails and slugs), some species of birds (such as humming birds) and animals (such as bats).

Unfortunately, the populations of insect pollinators like honey bees and native bees are showing drastic reduction over the past few decades due to parasitic diseases, over application of pesticides and other agro-chemicals in the agricultural fields, fluctuations in climatic regimes, ecological and environmental stresses, and lack of ideal foraging habitats for season long abundant food and nutrient supply to mention only a handful across the United States and Canada.

Diversity of native bee species in western Canada.
Photo credit: S. Robinson

Over 700 native bee species have been reported in Canada with around 400 species located in Western Canada alone across various habitats and ecosystems. Since the native bee populations across Canada are going down drastically, serious, comprehensive, sustainable and environment-friendly efforts are necessary to successfully conserve bee populations (both native bees and honey

Radish plot attracting native bees.
Photo credit: S. K. Basu

bees) and thereby secure the future of Canadian agriculture and apiculture industries from a long term perspective.

Use of pollinator mix or bee mix by Canadian producers such as organic growers can help significantly in promoting the conservation of native bee and honey bee populations across the nation by establishing ideal bee habitats or bee sanctuaries. A pollinator mix is a specially designed seed mix of several annual and/or perennial species of native wild flowers and grasses or annual/perennial wild flower-forage crop mix that can flower over a long period of time and help bees and other insect pollinators by providing them with ideal habitats to forage and nest over an extended period of time.

Pollinator mix can be seeded along fences of crop fields and ranches, along hard to reach areas of the farms, unused or agriculturally unsuitable patches, uphill or downhill farm patches difficult to crop, or undisturbed weedy patches along water bodies, along irrigation canals, low traffic and undisturbed parts of local parks or gardens, backyard kitchens or ideal spots of a hoe lawn, in and around golf courses, provincial parks and gardens.

Pollinator Mix rich in some annual/perennial forage legumes can also help organic producers to fix nitrogen and micro nutrient deficiencies of the soil, fix nitrogen, and help in building quality bee habitats for pollinator dependent crops like seed canola, seed alfalfa, tomatoes, berry crops, orchard, and forest trees to mention only a

Annual forage clover: An important forage pollinator species. Photo credit: S. K. Basu

few. Creating ideal bee habitats or bee sanctuaries in long or short stretches or commercial production of pollinator mix by organic producers can significantly help the dwindling bee populations of Canada.

How can the Pollinator Mix be useful:

1. Protecting honey bees, native bees, and other insect pollinators, thus allowing pollinators to get established and thrive in their natural ecosystems and helping in the process of pollination.
2. Bee sanctuaries for cities, municipalities, golf courses, ranch, and pastureland or in unused or polluted areas not suitable for farming and real estate can generate green spaces helping secondary target species such as smaller birds and animals to thrive.
3. Bee sanctuaries can also serve as ideal bird habitats for birds such as ducks, geese, pheasants to visit, forage, nest, and hide from predators.
4. Better yield and environment for organic producers growing both pollinator dependent/independent crops.
5. Environmental stewardship and establishing better farm environment and environmentally sustainable farm practices for growing pollinator dependent crops by both organic farmers and conventional non-organic crop producers alike.
6. Replacing weedy patches in and around farm area and establishing ideal bee habitats or bee sanctuaries reduces the seasonal outbreak of weeds in the organically producing farm areas.
7. Enrichment in soil quality and soil nutrient profile vital for organic producers to secure quality crop production due to presence of legumes and soil fixers in the Pollinator mix.
8. Utilizing unused areas of farm, hard to reach areas, inaccessible locations, around fences, roadsides, boulevards, around shelter belts, undisturbed and unused parts of the farms, around water bodies, irrigation canals, lakes, ponds, ditches, and swamps could significantly contribute towards increasing the vulnerable Canadian native bee populations.
9. Establishing high quality and sustainable bee sanctuaries in and around pasture, rangelands, and ranches. Pollinator mix with higher proportion of pollinator-friendly forage seed mix could be grown within rangelands left fallow for a season and could be even grazed by animals later in the season when the flowering period is over.
10. Promoting sustainable agriculture.

List of some important wildflower species attracting bees and other insect pollinators

Erigion (Flea bane)
Arnica (Wolf bane)
Aster conspicuus (Showy aster)
Gaillardia (Blanket flower)
Allium (Wild onion)
Asclepias (Milkweed)
Viccia sp. (Vetch)
Solidago canadensis (Canada goldenrod)
Chamerion (Fireweed)
Achillea millefolium (Yarrow)
Delphinium (Larkspur)
Campanula (Hare bell)
Phacelia (Scorpion weed)
Dahlia purpurea (Prairie purple clover)
Helianthus annuus (Annual/Perennial Sunflower)
Borage officinals (Borage)
Aquilegia canadensis (Wild columbine)
Annual/Perennial Gaillardia sp.
Alyssum maritimum (Sweet Alyssum)
Myosotis sp. (Forget-Me-Not)
Nemophila menziesii (Baby Blue Eyes)
Tradescantia ohiensis (Ohio Spiderwort)
Echinacea purpurea (Purple Coneflower)
Rudbeckia hirta (Black-eyed Sususn)

Acknowledgement: Performance Seed (Lethbridge, AB), S. Robinson (UFC, Calgary, AB) & W. Cetzal-Ix (ITC, Campeche, Mexico)

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Aquaponics AND THE ORGANIC MOVEMENT

Fish tanks at an aquaponics operation
Credit: Gabe Cipes

By Gabe Cipes

Editor's note: Aquaponics is a hotly debated topic in the organic sector. As the BC Organic Grower strives to make space for open discussion on all things organic, these pages provide an excellent forum to examine aquaponics in an organic context.

The fate and state of the world now depends on innovation in many forms to be supported and embraced where they are appropriate—that includes recognizing the organic nature of aquaponics.

The organic movement is based on a set of principles: health, ecology, fairness, and care for future generations and the environment. Following these principles, aquaponics is a method to produce a vast plethora of aquatic animals, fruits, and vegetables using a small fraction (~5%) of the water and on only a fraction of the land it takes to produce terrestrial crops. The soil is a recirculating, closed loop, self-sustaining, aquatic rhizosphere. The bi-product is a high value nutrient and biologically rich soil amendment.

The Soil is the Water

Within the system, we feed the aquatic animals, such as fish, crayfish, shrimp, turtles or alligators, and they populate all surface areas of the system with their gut biomes and provide nutrients. A diverse host of bacteria, protozoa, worms, fungi, and microbes convert solid waste and ammonia into nitrites and then into nitrates. The plant archaeon in the system perform phytoremediation for the water before it returns to the animals by absorbing the nitrates and nutrients transformed by the microorganisms. The plants release their own microbiology through their roots. Their secretions mix with the secretions of the other microorganisms to create humic acid (humus!). Carbonic acid is created through the cycle of death within the system. Mineralization and aeration are integrated through biological and mechanical zones. Thus, the living soil ecology is born in the water. The soil is the water.

Aquaponics is not soil-less agriculture. In fact, it brings us more in touch with the essentials of organic soil biology in a not so much controlled, but created and containable environment. The same impetus to create a self-sustaining, bio-diverse ecological balance by feeding the soil biome as is indicated in the organic and Demeter standards is practiced in aquaponics.

Aquaponics is not an easy or simple method of agriculture. It can involve highly mechanized functions and be energy intensive, although there are passive solutions available. Creating a system requires a high degree of biological, mechanical, and regenerative knowledge as well as careful insight. Just as with any method of farming there can be a broad spectrum of health in practice. Creating and stabilizing this natural food producing ecosystem organically can be a life long journey for an individual or a collaborative team effort involving many different skill sets.

Aquaponics vs Hydproponics

It is critical to draw the distinction between hydroponics and aquaponics and not lump the two together as soilless agriculture even though they may look alike in certain regards. Hydroponic growing removes the crucial soil factor and replaces it with soluble nutrient solutions force fed directly to the plants. Hydroponics can in no way duplicate either the complex benefits of soil or the beneficial environmental impact as aquaponics can.

Hydroponics was unfortunately accepted as organic by the USDA standards due to corporate lobbying and bureaucracy. In their 2010 objection to the organic certification of soil-free farming in the U.S. the National Organic Standards Board (NOSB) wrote "The abundance of organisms in healthy, organically maintained soils form a biological network, an amazing and diverse ecology that is 'the secret,' the foundation of the success of organic farming accomplished without the need for synthetic insecticides, nematicides, fumigants, etc…" (NOSB 2010) The "secret" to aquaponics is the same. Hydroponics is not certifiable in Canada, while aquaponics is certifiable under the Organic Aquaculture Standards CAN/CGSB-32.312-2012 [*Editor's note: None of the Certifying Bodies (CBs) accredited by COABC are currently certifying aquaponics.*]

An Ancient Practice

Millennia ago some of the most powerful nations in history utilized similar agricultural practices: the Chinampas, floating gardens of the American Aztecs, the rice paddies of ancient China, and ancient Greek descriptions of the hanging gardens of Babylon, one of the seven wonders of the world. They all relied upon fish and aquatic animals to fertilize their agricultural systems.

It is possible to grow crops this way because aquatic animals such as fish, crustaceans, and many other aquatic creatures do not carry the same potential pathogens in their manure as terrestrial animals do. The difference in application is the time and processing of the manure when comparing terrestrial manure to aquatic manure, which is pretty much immediately available as long as the system is colonized by the gut biota of the animals living in it. It can take two to six months to establish a living system. Multi-trophic remediation (involving aquatic plants and crustaceans) is encouraged in organic aquaculture.

The contemporary mastery of this method of agriculture in Canada has yet to be realized. The potential to grow fresh fish and vegetables all year long on a commercial scale is enormous. Large scale systems could economically compete with conventionally grown imported crops for the bulk foods market, supplying restaurant chains and big box stores without competing with high end niche organic markets or polluting the environment. It is accessible to all demographic and geographic variables. Due to its productivity and ability to provide both animal and vegetable products together in a compact space it can empower people to overcome hunger and starvation in remote areas.

Watercress growing in an aquaponic system
Credit: Gabe Cipes

Farming fish and crops this way allows our natural watersheds and natural soil ecologies to heal and regenerate. The vast majority of our planet is covered by oceans, which are under extreme stress today. One of the major sources of stress is over fishing (Rogers 2014). Aquaponics or variations thereof are the most sustainable methods of producing high quality and environmentally friendly fish.

Closing the Loop

The primary input of an Aquaponic system is the feed for the fish. Organic feed for salmonids, coregonids, tilapia, koi, sturgeon, catfish, perch, and other commonly used species is commercially available upon demand in BC through at least three major pet food distributors, namely: Ewos, Taplow, and Skretting. Major strides have been made recently in designing low cost sustainable organic formulas for fish feed, with the inclusion of Insect larvae, yeasts, invasive species of shrimp, algae/phytoplankton/kelp, organic grains, and tailings from the fishing industry. It is possible to close the loop on the need for aquatic fish protein and oils if organic aquaculture and aquaponic farmers work together to provide different species of tailings for formulas to be used within the organic industry. The goal is to be independent from relying on depleting oceanic sources of aquatic proteins.

There are many aquaponics operations currently certified organic in BC. You can learn more about the organic standards for aquaponics by reading the 32.312 Organic Aquaculture standard. You will see that the crop standards are pretty much identical to the 32.310 Terrestrial standard. Most operations, especially in BC, are contained structures to maintain bio-safety and bio-security. It is becoming increasingly vital to maintain organic integrity by avoiding contaminants in our environment.

In regards to pests or disease, crop pests would either be contained mechanically or be subdued by an introduced species to balance the disease or infestation. Beneficial

Chinampas in Mexico
Credit: Emmanuel Eslava

fungi, insects, plants, and animals are introduced and form symbiotic relationships. Antibiotics and hormones are also prohibited in organic aquaculture and stocking density needs to be kept low to prevent lice or other diseases. The prohibited and allowed substances align with 32.310 in regards to all materials and devices.

As this technology and its applications develop, so too will the organic standards. They will evolve and adapt through consensus of multiple organizational bodies to include better ecological practices. I hope to be involved in that conversation for many years to come. The standards are a base for the development of this method in Canada and should inspire best practices for the burgeoning organic aquaponics industry.

Organic Aquaculture Standards:

www.scc.ca/en/standardsdb/standards/26378

Gabe Cipes is a Permaculture designer and Biodynamicist practicing out of Summerhill Pyramid Winery in Kelowna, BC. Gabe keeps bees, chickens, creates the nine biodynamic preparations, and over sees the culinary gardens, forest gardens, and insectary habitats on the largest certified Demeter/Organic vineyard in Western Canada. Gabe serves on the board of COABC, the Biodynamic Associations of BC (BDASBC), and Demeter Canada as well as the Central Okanagan Food Policy Council (COFPC) and the Organic Okanagan Committee. Gabe has been collaborating with a team of entrepreneurs, aquaculture specialists, scientists, engineers and biologists to develop organic and biodynamic managed commercial aquaponics facilities. The company's mandate is to help supplant some of the conventional ravages facing the world with the highest quality, nutrient rich, and harmonious fish and produce, allowing our planet and populations to heal.

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SQUARING THE CIRCLE?

Education, Work, and Farm Internships


Credit: Charles Levkoe

By Michael Ekers and Charles Levkoe

Originally published by Ecological Farmers Association of Ontario in Ecological Farming in Ontario, Volume 37, Issue 2. This is part 2 of a 4 part series on research into unpaid farm labour. While the research was conducted with farms in Ontario, much of the findings likely carry over to BC.

Are agricultural internships and volunteer positions strictly about addressing farms' labour needs or are they a new model of farmer education and social movement building that is taking place beyond the confines of urban centres and post-secondary institutions?

On the one hand, there is no doubt that forms of non-traditional labour are about work. There are many cases in which interns are working upwards of 60 hours a week on farms performing the labour that would normally be associated with a paid employee. On the other hand, farm interns often receive a tremendous amount of hands-on experiential education in everything from organic growing methods and farm finances to marketing produce and farm lifestyles (such as homesteading and rural living). Many, but not all, walk away from internships feeling invigorated and connected to a vibrant food movement.

Can the circle, that is, education and social movement building, be squared with the reality that internships are often work, and, at times, underpaid (or even unpaid) work? This has been a key question we have been examining through conversations with interns and farmers connected to the issue.

In our first article, we noted the relatively meager gross revenues of many farms that work with interns and volunteers in Ontario, but this is a trend that stretches across Canada and beyond. Cheap food policies, ever escalating land costs and labour intensive forms of farming make alternative food production a difficult economic proposition. As readers will know, a tremendous amount of work goes into planning, planting, growing, weeding and harvesting organic food and several people we spoke with suggested that interns and volunteers have become a replacement for the work that chemicals typically perform on conventional farms.

A farmer, who also works for a non-profit organization linking potential interns and farm hosts, suggested that internships are primarily about labour: "One thing that is common to all of the farms [using interns], if they are being honest, whatever they're motivations are, they're solving a labour challenge on their farms." From this perspective, financially precarious farm businesses are meeting their intensive on-farm labour demands through the non-waged work of interns and volunteers.

While the question of labour clearly matters in the arrangements established between farmers and interns, the issue cannot be reduced to such a simply economic ratio-

nale. The benefits of an internship frequently far exceed monetary considerations and this is what contributes to the vibrancy of the experience for many workers and hosts, but not all. One farmer explained "The intern system is a really good one, and I think one that has value for both the farmer and the intern. Does the accommodation, good healthy food from the soil and the learning experience not have value too? What price can be put on fostering friendships and community? Intern and apprentice programs go far beyond what the intern provides to the farm." Similarly, another farmer lauded the same benefits while stressing that "a paid position would be less likely to be a vehicle for change." There is no doubt that internships defined by mutuality and reciprocity are a form of movement building and provide a valuable form of education, but does paying a wage necessarily detract from these facets of farm internships?

In many cases, our observations and our discussions with interns and farmers suggested that the most substantive internships were the ones that most closely paralleled what would be traditionally associated with work. When an internship looked like work, and felt like work for the interns, but was coupled with careful instruction, many non-waged farm workers reported receiving a robust education. When the internships were less structured and when the work was not overly demanding, such arrangements appeared to be more of an 'experience' rather than a nuanced and embodied form of education and work. This creates several interesting contradictions that are worth reflecting on.

Several farmers suggested that the relationship between education and work is a zero sum game in which dedicating more time to education means less work is accomplished. This, in turn, justifies the lack of pay because the benefits are non-monetary in substance. However, this is not necessarily the case if the internships that closely parallel farm work are the ones delivering a substantive and quality education to the interns. But this scenario also raises a thorny issue as farm owners and operators are open to the critique that 'if it looks like work, it should be paid like work'. Nevertheless, some farmers have responded, "we don't even pay ourselves, how can we pay our interns?" In contrast, others explained that "internships are inter-generationally unjust" and "that everyone should make a living wage".

Interestingly, many farmers stated their farm operations became more viable at a financial and functional level when they started to pay their interns and/or made the decision to hire paid workers. Furthermore, they told us that expectations were clearer between interns and farm operators, workers were more productive and the farmers reported spending far less time re-training each new group of interns and volunteers while also mediating on-farm social dynamics.

These reflections leave several lingering questions. First, were the farms that transitioned away from interns able to achieve this because of their earlier reliance on non-waged workers? Second, have organic and agroecological farms that have moved towards paid workers been able to maintain their 'alternative' character, that is, community orientations and the commitment to social movement building?

In our next installment we will look more deeply into the social identity of ecological farm interns and the ways that this may have broader impact on the future of the food movement. If you would like more information on the project, to comment on these issues or contact us please visit our website:

foodandlabour.ca

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Dr. Charles Levkoe is the Canada Research Chair in Sustainable Food Systems and an Assistant Professor in Health Sciences at Lakehead University. He has been involved in food sovereignty work for over 15 years in both the community and academic sectors. His ongoing community-based research focuses on the opportunities for building more socially just and ecologically sustainable food systems through collaboration and social mobilization.

THE LADYBUGS of Snowy Mountain

Ladybug larvae voraciously consuming aphids
Credit: Shauna Bader

AN ECOLOGICAL PARTNERSHIP IN BIOLOGICAL CONTROL

By Marjorie Harris, BSC, P.Ag.

A magical event takes place each spring in Walter Harvey's orchard. As the sun warms and thaws the landscape into frost free days, the ladybugs that spent the winter huddled together in the cracks and crevices of Snowy Mountain's rocky faced peak emerge in the thousands, taking flight down into the blossom filled orchards below. Along with the ladybugs, bumble bees and other wild bees leave the rocky shelter to join the spring blossom feasts.

The ladybugs come in such large numbers to Walter's orchard that so far this year out of 10,000 trees he has only found a handful of black cherry aphid clusters. When clusters are found Walter cuts them out and drenches them in barrels of water to stop further spread. The ladybugs are very aggressive at eating the aphids during all life stages from egg to larva to adult—the final result is that very seldom over 25 years has Walter had aphid problems.

During winter hikes several hundred meters above the valley floor up to the rocky faced peak of Snowy Mountain, Walter has observed the ladybugs crowded into crevices by the hundreds, "It's a really remarkably beautiful sight," Walter says, speaking in tones of wonder when considering the complexity of nature. Through biodynamic practices Walter is careful not to interrupt the beneficial organisms' ecologically balanced systems at work in the orchard and makes efforts to support their natural life cycles.

Grasshoppers sometimes nip overripe fruit and live mostly on the ground in the grass. Physical control methods are frequent mowing, occasional rototilling, and cover

crop rotation. However, Walter reports that the orchard hosts a huge population of praying mantis who do much of the grasshopper control. The ground mantis is the only species native to the Okanagan Valley while the European mantis was introduced to in the 1890s specifically to control grasshoppers. Both species are present in the South Okanagan. Walter is careful to respect and not disturb the papery egg cases hardened to stems, twigs, trees, or posts, each of which contains hundreds of eggs.

Predacious wasps control leaf roller larva, coddling moth, and nematodes. The mud wasp domain is in the grasses and the yellow jacket wasps control the tree canopies. Walter has installed 150 wren houses around the orchard that are filled yearly. The wrens are insectivores that provide additional control for leaf rollers and aphids throughout the season.

Nematodes are further controlled by disrupting the soil stage of their lifecycle. In the orchard drive row, Walter rotates cover crops of rye, clover, vetch, and oats to prevent catastrophic nematode populations from emerging. A large flock of free range ducks are run through the orchard after harvest is complete; they eat insect larva, eggs, and nematodes before the winter freeze.

Walter finds that most years his insect allies outnumber his insect pests and his experience echoes that of ancient farmers. Natural enemies were first recorded to be actively employed as biological controls in plant protection in China in 304 AD where large black predacious ants were gathered up and carried to citrus trees to control tree pests. The historical evidence is clear that biological

Inspecing leaves for aphids
Credit: Marjorie Harris

controls have played an important role in plant protection since ancient times and the knowledge and use of these farming tools spread to Yemen and Egypt relatively quickly.

The main groupings of biological controls are: predators, parasitoids, and pathogens. Predatory insects eat pest insects; parasitic insects lay their eggs inside pests and the larvae develop within the host, killing it; and pathogens such as fungi or bacteria consume the pests.

How can these biological controls be encouraged to move into your garden?

1. **Food:** many predatory insects dine on pollen when insect pests are in short supply. Keep a healthy supply of some of these favorite pollen rich producers growing in abundance: Angelica, Calendula, Caraway, Chives, Cilantro, Coreopsis, Cosmos, Dandelions, Dill, Fennel, Feverfew, Marigold, Scented Geraniums, Sweet Alyssum, Tansy, and Yarrow.
2. **Water:** provide water features throughout the garden containing fresh non-stagnant water.
3. **Shelter:** Vegetated buffers or clumps of natural flora and fauna that give thick cover provide good homes to beetles, birds, and amphibians.
4. **Respect for lifecycle:** know where the eggs for next year's progeny will be and carefully sustain them. Protect beneficials from management disturbances, pesticides, and adverse environmental conditions as much as possible.

Marjorie Harris, BSC, P.Ag. IOIA V.O.; EcoAudit Ag-Grow Service; Email: ecoaudit@telus.net

Table 1: Common Natural Enemies of Crop and Garden Pests of the Pacific Northwest (1)

Common Name	Order	Biological Control	Location
Ladybug	Coleoptera	Adults and larvae prey on aphids, scale insects, mites, and other small insects	All stages found on plants; pollen eaters
Green & Brown Lacewings	Neuroptera	Adults and larvae prey on aphids, mealybugs, thrips, and small insects	Adults seen flying on plants; eggs and larva on plants
Predacious Hoverflies	Syphidae	Larvae prey on aphids, scale insects	Adult are obligate flower feeders
Parasitoid Tachinid Flies	Tachinidae	Larvae are endoparasitoids of many worms, beetles, sawfly, and bug pests	Adults seen on flowers; eggs on hosts
Ground or Carabid Beetles	Coleoptera	Prey generally on soil organisms and seeds	Hidden during the day under objects or in soil
Rove Beetles	Coleoptera	Prey mostly on soil organisms	Hidden during the day under objects or in soil
Damsel or Nabid Bugs	Hemiptera	Adults and nymphs prey on other insects	Mostly found on low, dense vegetation
Predacious Stink bugs	Hemiptera	Adults and nymphs prey on other insects	Found vegetation, will have to observe if species is predacious or herbaceous.
Minute Pirate Bug	Hemiptera	Adults and nymphs prey on other insects	Found vegetation and flowers
Big-eyed Bugs	Hemiptera	Adults and nymphs prey on other insects	Found vegetation or ground.
Assassin Bugs	Hemiptera	Adults and nymphs prey on other insects	Found vegetation and flowers
Ambush Bugs	Hemiptera	Adults and nymphs prey on other insects	Found vegetation and flowers
Tiger Beetles	Coleoptera	Adults and larvae prey on other insects	Adults usually seen flying over or running on sandy soils
Solider Beetles	Coleoptera	Adults prey on other insects	Found on leaves and flowers
Thread-Waisted Wasps	Hymenoptera	Specialize on prey; females capture prey for larvae nests	Flying about
Vespid Wasps; Yellowjackets and Hornets	Hymenoptera	Adults bring prey insects back to large larvae nests	Flying about
Larger Parasitoid Wasps	Hymenoptera	Kill host by parasitism or feeding	Flying about
Braconid Wasps	Hymenoptera	Parasitize hosts	Adults hunt on flowers
Encrytid, Pteromalid, Chalcid, & Eulophid Wasps	Hymenoptera	Parasitize hosts	Flying about

Comments and Recommendations on the

SAFE FOOD FOR CANADIANS REGULATIONS

A BC Organic Perpective

This article contains excerpts and analysis of the official letter submitted by COABC in response to the government of Canada's public consultation period on new rules to strengthen food safety. The consultation period closed April 21, 2017. View the draft version of the Safe Food for Canadians Regulations as made available for public comment here: http://www.gazette.gc.ca/rp-pr/p1/2017/2017-01-21/html/reg1-eng.php#reg

COABC has identified a number of areas in the proposed regulations that have implications for the organic sector, and submitted recommendations for amendments or additions to the draft regulations.

The BC certification accreditation programs are industry and government partnerships which are industry-driven and industry-regulated, with both federal and provincial governments providing oversight authority. The main objectives of the programs are to provide consumer confidence in the organic product certification, to assist producers to increase market share, and to support regional development of organic food production, processing and marketing.

With the proposed migration of the Organic Products Regulations to the new amalgamated Safe Food for Canadians Regulations, the COABC felt it was the appropriate time to do a review. Here, the COABC responds to the implications of the overall framework of the Safe Food for Canadians Regulations on BC producers and the revised organic regulation text in Part 14 of the Safe Food for Canadians Regulations. We also took the opportunity to review the scope of the organic federal regulations and the working relationship between the federal government and the organic agriculture and food sector.

THE SCOPE OF THE ORGANIC FEDERAL REGULATIONS

Is the Safe Food for Canadians Act and Regulation the appropriate act and regulation to house the Canadian organic regulations? The following analysis summarizes the benefits of this migration, other potential benefits that could be realized, and explores the limitations of this migration.

The move to the Safe Food for Canadians Acts does increase the scope of products that can be certified. Under the Canadian Agricultural Products Act organic certification was restricted to food, livestock, feed, and seed. Under the Safe Food for Canadians Regulations, aquaculture comes within scope.

COABC has recommended changing the title of Part 14 from "Organic Products" to "Organic" or "Organic Production". This change would simplify the certification process for various types of operations that do not make a product but are integral to the sector such as service providers, and packaging and labeling operations. This proposed name change would eliminate the current complicated requirement for different types of certificate of conformity documents (e.g. product certificates, packaging and labeling certificates, attestation of compliances) for different types of operations (e.g. product, packaging and labeling, service providers). All products and activities could be covered by one type of certificate, as is the case with our trading partners.

Limitations of the migration to the Safe Food for Canadians Act

By enshrining Canadian organic regulations within a food act, organic Natural Health Products, personal care products, floriculture, pet food and textiles remain out of scope of Canadian organic regulations. The inclusion of aquaculture in the Canada Organic Standards is controversial in BC. This limitation does not stop non-food products certified under other international organic programs or unsubstantiated organic claims from being sold in Canada.

Restricting Canadian-based organic certification bodies to certifying only food, feed, and seed creates an unlevel playing field as out of country competing certification bodies certify a wider product/client range, including Canadian operations.

COABC has recommended that all agriculturally derived and wild harvested organic products and related services be certifiable to the Canadian organic standards with Canadian regulatory oversight.

THE LICENSING REDUNDANCY IN THE SAFE FOOD FOR CANADIANS REGULATIONS FOR BC ORGANIC PRODUCERS

In the event Canadian organic regulations remain under the Safe Food for Canadians Regulations, the licensing requirement for operations that field pack fruit or vegetables and ship out of province is unnecessary.

Adding this licensing requirement onto organic operations is redundant as all organic operations are already

'licensed' and traceable by CFIA. Certification bodies submit a list of certified entities, their contact and certification details to CFIA annually.

COABC has recommended that Canadian organic operations be exempt from this licensing requirement.

THE DRAFT ORGANIC PRODUCTS REGULATIONS - PART 14 OF THE SAFE FOOD FOR CANADIANS REGULATIONS (21 JAN 2017 GAZETTED VERSION – CLAUSES 338 THROUGH 362)

COABC's concerns with elements of Part 14 are identified below.

Aquaponics

Aquatic plant definition – clause 338 4.2.1.
The definition of aquatic plant was revised, adding the following sentence: "It does not include fresh fruits and vegetables". This revision creates a prohibition on aquaponic production systems that combine aquaculture with the cultivation of plants in a symbiotic relationship. CAN/CGSB 32.312 allows aquaponic product. The COABC board is divided on this revision and questions the lack of sector consultation.

COABC has requested a fuller consultation to determine the status of organic aquaponic production of fresh fruit and vegetables.

Preparation

Footnote 1 vs. Various activities - clause 338 4.3.1.
The word 'preparation' has been dropped from the draft regulations in Part 14 of the Safe Food for Canadian Regulations and replaced with "various activities" and "preparation" moved to Footnote 1. Based on earlier drafts of the Safe Food for Canadians Regulations, the 2015 version of the Canada Organic Standards (CAN/CGSB 32.310) incorporated "preparation" into its lexicon, and, with that terminology, aligned the handling and processing standards. This latest revision in the regulation creates a disconnection between the presiding regulation and the standard.

COABC has recommended the word "Preparation" be brought back into Part 14 to better align the regulations with the standards and "various activities" modified to "various preparation activities".

Storing and Conveying

Conduct of activities – clause 340 4.4.1.
Storing and conveying have been added to the "various activities" that need to be conducted by an operator or a third party that holds a certification for that activity. This is a change from the 2009 Organic Products Regulations with significant negative repercussions. It would require all warehouses and transport companies servicing organic operations to secure certification, no matter how low the risk to organic integrity. Adding such a carte blanche requirement is redundant and will create unnecessary logistical burdens for organic producers, buyers and certifiers, and will limit expansion of the sector.

Storage certification is unnecessary for organic products packed and labeled by a certified operation; and storage companies attest to the organic operation that neither their pest management nor sanitation practices will compromise the organic integrity of the packed goods, and meet the facility pest management requirements of 8.3 of CAN/CGSB 32.310 -2015.

Conveyance certification is unnecessary when the transport company is moving packaged or unpackaged organic products from one organic operation to another and the transportation requirements of 8.4 of CAN/CGSB 32.310 -2015 are addressed and attested. Conveyance certification is appropriate for unloading of unpackaged organic products (e.g. grain) at uncertified operations.

COABC has recommend that clause 340 is amended qualifying any reference to storage and conveyance certification requirements, as follows:

- Storage certification is required for unpackaged products,
- Conveyance certification is required for unpackaged organic products when either the shipping or receiving operation do not hold a valid certificate

Slaughter

Conduct of activities—clause 340
Slaughter has been added to the "various activities" that need to be conducted by an operator or a third party that holds a certification for that activity. Due to the continued lack of slaughter capacity across the country it remains premature to require the certification of slaughter activities. In the interim the organic integrity of slaughter stock and livestock products would be maintained in accordance with the requirements set out in clauses 6, 8 & 9 of CAN/CGSB 32.310- 2015.

COABC has recommended that the new slaughter certification requirement be rescinded.

Transition

Fifteen months vs 12 months – clause 341 (3) 4.6.1.
The wording in the 2009 version of this clause has led to confusion and will continue to do so as it has been duplicated verbatim in the Safe Food for Canadians Regulations.

According to the Canada Organic Office "within 12 months" was intended to mean anytime within the 12 months leading up to when the organic products are expected to be sold as long as there was enough time for the application, inspection, and decision making process

to take place. "Within 12 months" in the original text was not applicable to crop and maple operations.

The "15 months" application requirement was added for specific land based operations to allow the certification body sufficient turnaround time to complete their assessment. Fifteen months do not have to pass before certification for an initial land based application and now an initial water based application can be awarded if the 12 months of compliance, as required in 5.2.1 of CAN/CGSB 32.310, and in 4.5.2 of CAN/CGSB 32.312 can be substantiated. These two different 12-month concepts need to be separated.

COABC has recommended that 341 (3) be revised to clarify the land & water based operation application requirements as follows:
In the case of an initial application for the organic certification for a food commodity, the application must be filed within 12 months before the day on which the food commodity is expected to be sold, or, in the case of the following food commodities, at least 15 months before that day:
For the following operations, where the certification body must ensure the standards are fully applied for 12 months, the application must be filed within 152 months before the day on which the food commodity is expected to be sold:

a. maple products;
b. field crops or crops that are grown in greenhouses with an in-ground permanent soil system;
c. uncultivated seaweeds and aquatic plants; and
d. aquaculture products with a production cycle of more than 12 months.

"Field crop"

Clause 341 (3) (b) 4.7.1.
The use of "field crop" in this clause has lead to confusion since 2009 across the country. Some certification bodies have been using the Government of Canada's Termium Plus definition for "field crop" as their guide while others haven't, creating an unlevel playing field in terms of transition requirements. The Termium Plus definition is "They [Field crop] are classified according to use: Cereal crops, seed legume crops, root crops, forage crops, sugar crops, oil crops, tuber crops and stimulant crops (tobacco, coffee, tea)" This definition does not include vegetable or fruit production or pasture. It was always the intention to cover all crops by this regulatory requirement.

COABC has recommended revision of clause 341 (3) (b) as follows: To ensure a consistent interpretation between certification bodies change "field crop" to "crops grown in soil including pasture" in 341 (3) (b) as follows: crops grow in soil including pasture and crops that are grown in greenhouses with an in- ground permanent soil system.

Period of validity - clause 345(3) 4.8.1.
This revision instituting a 12 month expiry date on certificates is problematic due to the length of time many products remain in the supply chain. It also creates an unnecessary administrative burden for certification bodies and organic operations.

COABC has recommended certification documentation, once issued, remains valid, unless suspended or cancelled by the certification body, or surrendered by the operation. To remain valid, the holder of the certification must apply annually to the certification body for continued certification. The product and activity listings will need to be updated by the certification body on an annual basis. The certification body may initiate suspension or cancelation where the application is not submitted within the specified timeframe.

Missing Provisions in Part 14

There are some gaps in the current requirements that should be addressed as follows:

- Incorporate a 5 year cancellation period for operations that contravene a provision of the organic regulations and subject them to the fines as outlined in the Safe Food for Canadians Act. During this 5 year period the cancelled operation cannot apply to another certification body (which is currently allowed).
- CFIA currently publicly posts a list of cancelled and suspended operations. Most times operations are suspended due to lack of payment and can be addressed internally. Posting this type of information online undermines consumer trust. There is also a problem with the list not being kept current, due to a lack of resources at CFIA and simple turnaround delays updating and posting the list to the federal website.
- At minimum, the current CFIA posting should be modified to only include cancelled not suspended, operations.
- The federal government establish a mechanism to publish and maintain a publically accessible list of Canadian organic certified entities along with their contact information and certification details to ensure transparency and public trust.

New Provisions for consideration in Part 14

The following elements should be added into the Part 14 now and the mechanism details worked out at a later date.

- Enable the collection of a surcharge on certification fees. These funds would become the industry contribution for ongoing standards maintenance.
- Enable a performance based risk assessment for direct-market organic farms. This tool would allow the certification bodies to determine the frequency of their onsite inspections with the potential to reduce the number of onsite inspection within a three year cycle. Implementation of such a program would reduce costs for direct marketers and may serve as an incentive for direct-market operations to enter the organic marketplace.

MEANS TO IMPROVE THE WORKING RELATIONSHIP BETWEEN THE FEDERAL GOVERNMENT, SECTOR PLAYERS AND CONSUMERS

With the demise of the Canada Organic Office it is unclear who in government is working with the organic sector delivering sector oversight. Federally accredited Certification Bodies inspect, verify compliance with the standards and provide the organic certificate to the applicant. But they cannot do this in isolation. This lack of government capacity undermines the organic industry and public trust.

The COABC recommends that the federal government re-establish the Canada Organic Office with sufficient staffing and funding to support the organic regulation, and maintain and develop equivalency agreements with our trading partners.

... COABC News Patch - continued from page 5

Disaster Financial Assistance

It's been a challenging year for farmers across BC, with heavy, prolonged snowfall and below freezing temperatures followed by a wet, cold spring. In some regions, farmers who are experiencing flooding may be eligible for Disaster Financial Assistance from the provincial government.

From the B.C. government website: "Following a disaster, the provincial government may declare the event eligible for Disaster Financial Assistance (DFA). Once declared, the DFA program may compensate individuals for essential uninsurable losses and/or reimburse local governments for damaged infrastructure."

Type of event: Severe weather
Date of Event: May 4, 2017 to (end date: to be determined)
Geographic Area (subject to change): TNRD, NORD, CSRD, OSRD, CORD, RDKB, RDEK, RDCK
90-Day Deadline for Applications: August 5, 2017

Type of event: Flood
Date of Event: March 5 - April 10, 2017
Geographic Area (subject to change): RDEK, RDCK, RDKB, CSRD
90-Day Deadline for Applications: July 10, 2017
Forms can be found online – look for Application for Small Business, Farm or Charitable Organization. Find the link to the forms online at:

bcorganicgrower.ca/newspatchsummer17

Feast of Fields

FarmFolk CityFolk invites you to experience the harvest, gourmet style at their annual celebration of local food:

Okanagan: Sunday, August 13th, 2017

Vancouver Island: Sunday, August 27th, 2017

Metro Vancouver: Sunday, September 10th, 2017

For tickets and info:

feastoffields.com

A Food Policy for Canada

Canadians are being asked what food issues matter to them with the launch of *A Food Policy for Canada* consultations

What does a national food policy look like to you? It's time to share your voice with Canada!

To share your input, fill out the online survey available at

canada.ca/food-policy

Canadians can share their views on four major themes:
- increasing access to affordable food;
- improving health and food safety;
- conserving our soil, water, and air; and
- growing more high-quality food.

Classifieds

Suppliers Wanted:

Ostro Organics is looking for cleaned, certified organic borage, evening primrose, hemp, safflower, sunflower, camelina oil-seeds. Growers/Processors please contact info@ostro-organics.ca or call 778-922-2229

Would you like to run your classified ad in the BC Organic Grower? Classified ads are 30 words for $25/issue (plus tax.) Email Moss at bcogadvertising@certifiedorganic.bc.ca for more information.

COABC
Certified Organic Associations of BC

ORDER FORM

202-3002 32nd Avenue, Vernon, BC V1T 2L7; p: 250 .260.4429; f: 250.260.4436; office@certifiedorganic.bc.ca

Enterprise Name: _____

Contact Name: _____

Address: _____

City/Province: _____

Postal Code: _____ **Phone Number:** (___)_____

Certification Body & No.: _____

Date Ordered: _____ **Date Required:** _____

PST Exemption (for packaging materials)

☐ Option 1:
BCAC Farmer ID # :_____ Expiry:_____

☐ Option 2: PST Number: _____

☐ Option 3: Certificate of Exemption
Farmer exemption: 0458FILL.pdf
Other enterprises exemption: 0490FILL.pdf
or request the appropriate exemption form from the office.

Item	Units	Unit Price	Quantity Discount	Quantity	Total
Stickers 1" round	1000 pc roll	$13.50	10 rolls $120.00		
Stickers 1 1/4" square	1000 pc roll	$13.50	10 rolls $120.00		
Twist Ties 10" (15,000 per case)	1000 pc	$13.00	Full Case-$165.00		

The packaging materials above are only available to COABC Certified Organic members and are PST exempt for qualifying enterprises (see above).
Have you signed a Consent to use Official Marks Declaration Form (July 2006 revision)? Y/N Are you Certified? Y/N
With which products will you be using the packaging materials?_____
_____

Promo Materials: available to everyone	Member $	Non-member $	Tax		
Bucket Hats size M or L *	$15.75	$15.75	PST taxable		
Ball Caps	$13.10	$13.10	PST taxable		
Natural T-shirts (Plain) S * or XXL	$5.00	$5.00	PST taxable		
NEW!! COABC T-shirts Designed by Brian MacIsaac Men's size S-XXL & Ladies sizes S-L	$17.85	$17.85	PST taxable		
Organic Tree Fruit Management	$19.95	$25.95	No PST		
Western Canada Organic Directory	$6.00	$6.00	No PST		
			Sub-total (before taxes and shipping):		

*Limited quantities available - please contact the COABC office for availability

GST # 887782431

Postage Rates
Minimum charge of $10.00 per order for any promo and/or packaging materials
GST will be added to postage amounts
Rates vary and will be calculated at the office

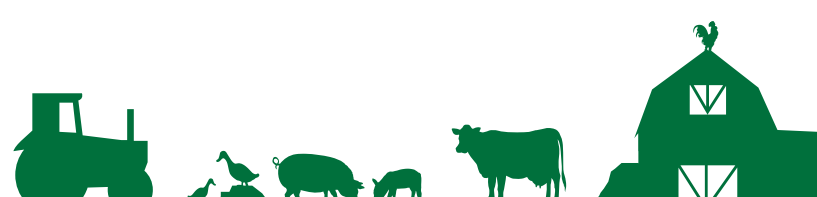
An invoice will be sent with your order. Postage and applicable taxes will be added to your invoice.
Please do not send payment before receiving invoice.

More than a farmer

I nurture healthy soil, that grows healthy food, that grows healthy people, that grow healthy communities!

COABC

Certified Organic Associations of BC



www.certifiedorganic.bc.ca

British Columbia Certified Organic

British Columbia

Supported by BC's Buy Local program